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(54) VACUUM CLEANER

(71) We, ELECTROLUX LIMITED, a British company, of Electrolux Works, Luton, Bedfordshire, England, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a vacuum cleaner, comprising an implement, for example a nozzle with a tubular wand, which can be coupled to an intermediate part supported in use by the person using the cleaner, the intermediate part being connected by a hose to a device normally standing on a floor and containing for example a motor/fan unit.

Such a vacuum cleaner is known in which the intermediate part is usually a bent metal tube held in the hand of the user while the implement is being moved over the floor. The motor fan unit and the dust bag of the vacuum cleaner are enclosed in a common casing which is moved on a floor by the aid of a flexible hose connection between the intermediate part and the casing. In such a vacuum cleaner, the electric switch and other controls are sometimes placed on the intermediate part so that they are easier to reach than when they are placed on the casing.

Such a vacuum cleaner has, however, disadvantages. The casing is long and bulky and some considerable effort on the part of the user is required for its handling. Further it is difficult to apply the electric conductors for the control means to the hose readily and at low cost. Such conductors have been disposed for example outside the hose, but this is unsightly and requires special attachment means, which involve increased cost. Attempts have been made to embed the conductors in the hose. This method, however, is rather expensive, to some extent because the hose must satisfy official test requirements with regard to electric material. Nor has it been possible to arrange the conductors inside the hose, since this would increase the risk of clogging.

An object of this invention is to reduce these drawbacks and to provide a vacuum cleaner which is easier to handle and in which the electric conductors are placed in a simple and practical manner inside the hose.

According to this invention, a vacuum cleaner comprises an implement and an intermediate part which i) is coupled to the implement; ii) is supported in use by the user; iii) is connected by a hose to a casing normally standing on the floor; iv) comprises a dust-collecting container; v) has a handle by which the implement is moved over a work surface; and vi) has electric current controlling means on or adjacent the handle.

The invention will now be described by way of example, with reference to the accompanying drawing, in which:—

Figure 1 is a perspective view; and

Figure 2 is a detail section.

As seen in Figure 1, a vacuum cleaner 10 comprises three main parts, viz. an implement 11, an intermediate part 12, and a casing 13, which parts are inter-connected, as will be described. The implement 11 has a nozzle 14 to take up dust and dirt particles from the work surface through a suction opening and to move them through a tubular wand 15 to the intermediate part 12. The implement 11 can be coupled to the intermediate part 12 by a coupling 16.

As seen in Figure 2, the intermediate part 12 comprises a container 17 in which a foraminous basket 18 with a dust bag 19 is mounted. The container 17 has a handle 20 by which the implement 11 is moved over the work surface. At the front of the container a cover 21 is attached to the bottom of the container by a hinge 22. The cover is locked to the container 17 by a latch 23. The cover also has a ledge 24 extending along the edges of the container and intended to clamp the basket 18 and the bag 19 against a corresponding ledge 25 in the container. A bent pipe 26 passes through the cover and is connected to the wand 15 by the coupling 16. The part of the pipe 26 which opens into

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the container is in the form of a spigot tube conducting dust-laden air into the dust bag 19. In the rear wall of the container is an opening 27 for a hose 28 which is connected to the casing 13. The handle 20 is hollow and has at its top a combined electric switch 29 and a lamp, the switch being intended for connecting and disconnecting the vacuum cleaner motor and the lamp being intended for indicating that the vacuum cleaner is connected to an electric supply. By a loose supply cable 30 in the handle 20 and in the hose 28, the switch 29 is electrically connected to the motor/fan unit 32 in the casing 13.

The hose 28 is joined to the casing 13 by a quick-release coupling 31 which also includes a quick-release coupling for the supply cable.

The casing 13 also has a cord winder 33, a diffuser 34 and wheels 35.

Dust-laden air is drawn in by the implement 11 and conducted *via* the pipe 26 into the intermediate part 12, whence it flows through the container 17, in which the particles of dust and dirt are collected in the dust bag 19. The clean air continues through the hose 28, the casing 13 and out through the diffuser 34. Thus, virtually no dust-laden air will flow through the hose 28 and the risk of clogging the hose 28 is avoided, so that it becomes possible to dispose such means in the hose that would otherwise increase the risk of clogging, in this case the electric cable 30. Hence this invention permits the cable to be loose in the hose 28, which is a simple and inexpensive method of transferring electric energy from the casing to the intermediate part and *vice versa*.

The casing 13 may be light, compact, and shorter than in known vacuum cleaners.

Instead of being fixed to the container 17 the hose 28 may have a quick-release coupling permitting it to be separated from the container, in which case an electrical connector provides for connection of the cable 30. Likewise it is possible to use any suitable device to secure the cover 21 and to remove it from the container 17. The container is preferably of plastics material to restrict its weight, but other materials can be used, for example, aluminium sheet.

As a complement to the circuit switch of the vacuum cleaner motor the handle can be equipped with control members, such as a dust indicator and a suction control device. It is also possible to conduct the electric energy to an electrically operated member

in the implement. In that case the intermediate part should have an electric connection *via* a conductor to the implement for connection of the electrically operated member.

WHAT WE CLAIM IS:—

1. A vacuum cleaner, comprising an implement and an intermediate part which i) is coupled to the implement; ii) is supported in use by the user; iii) is connected by a hose to a casing normally standing on the floor; iv) comprises a dust-collecting container; v) has a handle by which the implement is moved over a work surface; and has electric current controlling means on or adjacent the handle.

2. A vacuum cleaner according to claim 1, wherein the electric current controlling means is a switch.

3. A vacuum cleaner according to claim 1 or claim 2, wherein the intermediate part is electrically connected to a motor/fan unit of the cleaner by a supply cable loose in the hose.

4. A vacuum cleaner according to any preceding claim, wherein one end of the hose is fixed to the intermediate part.

5. A vacuum cleaner according to claim 3, wherein one end of the hose is detachably connected to the intermediate part, electrical connection of the cable to the intermediate part being established by an electrical connector.

6. A vacuum cleaner according to claim 4 or claim 5, wherein the other end of the hose is detachably connected to the casing and has an electrical connector for the supply cable.

7. A vacuum cleaner according to claim 3, wherein the intermediate part has connecting means for an electrically operated member in the implement, the connecting means communicating with a current source by way of the supply cable.

8. A vacuum cleaner according to any preceding claim, wherein the dust collecting container includes a disposable dust bag.

9. A vacuum cleaner according to claim 8, wherein the dust bag is in a basket removably fitted in the container.

10. A vacuum cleaner constructed and arranged substantially as herein described and shown in the accompanying drawing.

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